American POTATO JOURNAL

Official Organ of The Potato Association of America

> VOLUME 52 JANUARY-DECEMBER 1975

> > Editor-in-Chief GEDDES W. SIMPSON

THE POTATO ASSOCIATION OF AMERICA

UNIVERSITY OF MAINE ORONO, MAINE 04473

OFFICERS

ROBERT MERCER, President

JOHN A. SCHOENEMANN. President-Elect

N. S. WRIGHT, Vice President

ROBERT TREADWAY, Past President

HUGH J. MURPHY, Secretary

EDWARD F. JOHNSTON, Treasurer

DIRECTORS

WILLIAM R. CORRIN RICHARD CHASE GARRY JOHNSTON

P. ROGER ROWE MONTY D. HARRISON

EDITORIAL BOARD

GEDDES W. SIMPSON, Editor-in-Chief

ROBERT V. AKELEY

JOSEPH J. PAVEK

HENRY M. DARLING

ROBERT PLAISTED

ARTHUR HAWKINS

LIND SANFORD

PETER H. HEINZE

WAYLAND SHANDS

WILLIAM G. HOYMAN

ROY SHAW

JAMES B. KRING

WALTER SPARKS

ROBERT KUNKEL

MERLE WEAVER

DONALD NELSON

N. S. WRIGHT

INDEX TO VOLUME 52

AUTHOR AND TITLE INDEX

ADAMS, JEAN B. Comments on aphid resistance in potatoes, 313

ALI, S. A., D. C. NELSON and T. P. FREEMAN. Suberization and periderm development in Norchief and Red Pontiac potatoes, 201-209

ALLEN, T. C., see Davis, J. R.
BAILEY, E. M., see Johnson, L. F.
BOLE, J. B., see Dubetz, S.
BRADLEY, R. H. E., see James, W. C.

DALLIMORE, C. E., see McDole, R. E.
DAVIES, H. T., H. L. McEWEN and N. C. DIXON. Field testing potatoes for resistance to leafroll and virus Y, 151-155

DAVIES, H. T., see Young, D. A. DAVIS, J. R. and T. C. ALLEN. Weed hosts of the tobacco rattle virus in Idaho, 1-8 DEARBORN, C. H. Snowchip: a high yielding potato variety for Alaskan growers and processors, 47-50

DEBOER, S. H. and A. KELMAN. Evaluation of procedures for detection of pectolytic Erwinia spp. on potato tubers, 117-123

DIXON, N. C., see Davies, H. T. DOUGLAS, D. R., see Keeler, R. F.

DUBETZ, S. Effect of two depths of seedbed preparation and fertilizer on Netted Gem potatoes, 263-267

DUBETZ, S. and J. B. BOLE. Effect of nitrogen, phosphorus and potassium fertilizers on yield components and specific gravity of potatoes. 399-405. EASTMAN, PAUL J. and GEDDES W. SIMPSON. Obituary for Erlon L. Newdick, 415.

FERNANDEZ DE CUBILLOS, C. and H. D. THURSTÓN. The effect of viruses on infection by *Phytophthora infestans* (Mont.) de Bary in potatoes, 221-226 FORSYTHE, HOWARD Y, JR., Obituary for Jay P. Sleesman, 376

FRANK, J. S., see Wilson, J. M. FREEMAN, T. P., see Ali, S. A. GANDAR, P. W. and C. B. TANNER. Comparison of methods for measuring leaf and tuber water potentials in potatoes, 387-397.
GARDNER, B. R. and J. P. JONES. Petiole analysis and the nitrogen fertilization of Russet

Burbank potatoes, 195-200

HALL, C. W., see Peterson, C. L. HARRINGTON, J. D., see Miller, R. A.

HAWKINS, ARTHUR. Nomination of James Munro for Honorary Life Membership, 373 HUDSON, D. E. The relationship of cell size, intercellular space and specific gravity to bruise depth in potatoes, 9-14

HWANG, K. E., see Nelson, S. H JACKSON, H. R., see Wallen, V. R.

JAMES, W. C., R. H. E. BRADLEY, C. S. SHIH and S. I. WONG. Misses in potato crops in

New Brunswick in 1973; their extent, distribution and cause, 83-87

JAMES, W. C., see Wallen, V. R.

JOHNSON, L. F., E. M. BAILEY and C. L. PETERSON. New concepts in potato harvesting, 23-37 JONES, J. P., see Gardner, B. R.

JONES, R. A. C., see Salazar, L. F. KEELER, R. F., D. R. DOUGLAS and G. F. STALLKNECHT. The testing of blighted, aged and control Russet Burbank potato tuber preparations for ability to produce spina bifida and anencephaly in rats, rabbits, hamsters and mice, 125-132

KELMAN, A., see DeBoer, S. H. KRIKUN, J., see Susnoschi, M.

KUHN, G. D., see MILLER, R. A.

LAM, SHUE-LOCK. Shoot formation in potato tuber discs in tissue culture, 103-106 LEACH, S. S. and L. W. NIELSEN. Elimination of fusarial contamination on seed potatoes,

211-218 LI, P. H. and K. D. SAYRE. The protein, non-protein and total nitrogen in Solanum

tuberosum spp. andigena potatoes, 341-350.

MANZER, FRANKLIN E. Nomination of Geddes W. Simpson for Honorary Life Member-

ship, 374 MANZER, F. E., R. C. McCRUM and D. C. MERRIAM. Testing Maine potato seed stocks

in Florida for presence of virus X, 137-141

McCRUM, R. C., see Manzer, F. E.

- McDOLE, R. E. and C. E. DALLIMORE. Cropping sequence studies on coarse textured soils in southeastern Idaho, 15-21
- McEWEN, H. L., see Davies, H. T.
- McINTYRE, G. A. and C. RUSANOWSKI. Scanning electron microscope observations of the development of sporophores of Collectotrichum atramentarium (B. et Br.) Taub. on infected potato periderm, 269-275
- MERRIAM, D. C., see Manzer, F. E. MILLER, R. A., J. D. HARRINGTON and G. D. KUHN. Effect of variety and harvest date on tuber sugars and chip color, 379-386.
- MOK, D. W. S., S. J. PELOOUIN and T. R. TARN. Cytology of potato triploids producing
- 2N pollen, 171-174 MUNOZ, F. J., R. L. PLAISTED and H. D. THURSTON. Resistance to potato virus Y in Solanum tuberosum spp. andigena, 107-115
- MORRIS, T. J. and WRIGHT, N. S. Detection on polyacrylamide gel of a diagnostic nucleic acid from tissue infected with potato spindle tuber viroid, 59-63
- NELSON, D. C., see Ali, S. A. NELSON, S. H. and K. E. HWANG, Water usage of potato plants at different stages of growth, 331-340

- growth, 331-340

 NIELSEN, L. W., see Leach, S. S.

 NONAKA, M., see Sayre, R. N.

 ORR, P. H. Noise levels in potato packing houses and dry-grading plants, 249-262

 PELOQUIN, S. J., see Mok, D. W. S.

 PELSUE, N. H., Jr. Demand relationships and pricing implications for selected potato products, 39-45

 PETERSON, C. L. and C. W. HALL. Dynamic mechanical properties of the Russet Burbank
- potato as related to temperature and bruise susceptibility, 289-312

- polato as related to temperature and bruise susceptibility, 289-312
 PETERSON, C. L., see Johnson, L. F.
 PLAISTED, R. L., see Munoz, F. J.
 PLAISTED, R. L., see Schalk, J. M.
 RUSANOWSKI, C., see McIntyre, G. A.
 SALAZAR, L. F. and R. C. A. JONES, Some studies on the distribution and incidence of potato mop-top virus in Peru, 143-150

- SANFORD, L. L., see Schalk, J. M. SAYRE, K. D., see Li, P. H. SAYRE, R. N., M. NONAKA and M. L. WEAVER. French fry quality related to specific gravity and solids content variation among potato strips within the same tuber, 73-82 SCHALK, J. M., R. L. PLAISTED and L. L. SANFORD. Progress report: resistance to the
- Colorado potato beetle and potato leafhopper in Solanum tuberosum subsp. andigena, 175-177
- SHIH, C. S., see James, W. C. SIMMONDS, N. W. and J. M. TODD. Obituary for William Black, 418. SIMPSON. GEDDES W., see Eastman, Paul J.

- SMITH, A. M., see Wallen, V. R.
 SPARKS, W. C. Potato storage factors of economic importance, 89-97
 STALLKNECHT, G. F., see Keeler, R. F.
 SUSNOSCHI, M., J. KRIKUN and Z. ZUTA. Variety trial of potatoes resistant to Verticillium wilt, 221-226
- TANNER, C. B., see Gandar, P. W.
- TARN, T. R., see Mok, D. W. S. THURSTON, H. D., see Fernandez de Cubillos, C. THURSTON, H. D., see Munoz, F. J.

- TODD, J. M., see Simmonds, N. W. WALLEN, V. R., H. R. JACKSON, W. C. JAMES and A. M. SMITH. Optical density variation in aerial photographs of potato plots infected with Phytophthora infestans,
- WEAVER, M. L., see Sayre, R. N. WILSON, J. M. and J. S. FRANK. The effect of systemic pesticides on total glycoalkaloid content of potato tubers at harvest, 179-184
- WONG, S. I., see James, W. C.
- WRIGHT, N. S., see Morris, T. J
- YOUNG, D. A. and H. T. DAVIES. Belleisle: a new maincrop variety with excellent table quality and bruise resistance, 51-55
- ZUTA, Z., see Susnoschi, M.

SUBJECT INDEX

AAUP launches program for handicapped scientists, back cover, Nov. Abstracts of papers presented at the 59th annual meeting, 239 and 277 Acreage of certified seed entered in 1975, 365

Aerial photography, useful in late blight detection, 233
Anaencephaly, relation to blighted potatoes, in laboratory animals, 125 An historical note, 65

Belleisle, described, 51

Bruise depth in potatoes.

relation of cell size to, 9 relation of intercellular space to, 9

relation of specific gravity to, 9

Call for nominations for honorary life memberships in the PAA, 102

Call for papers for annual meeting, 22, 420

Central Potato Research Institute (India) is 25 years old, 101

Certification section, winter meeting, 361 Certified seed entered for certification in 1975, 365

Chip color determined by Rd (reflectance) units, 379

Colletotrichum atramentarium, development of sporophores on infected potato periderm,

Cropping sequence studies in Idaho, 15

Cytology of potato triploids, 171

Demand relationships for selected potato products, 39

Detection of Erwinia spp. on tubers, 117

Development of sporophores of Colletotrichum atramentarium, 269

Distribution of mop-top virus, 143

Dry-grading plants, noise in, 249 Dynamic mechanical properties of Russet Burbank, 289

Erwinia, 117

Extent, distribution and cause of misses in the potato crop, 83

Factors of economic importance in potato storages, 89

Fertilization, effect of, on Netted Gem potatoes, 263

Fertilization: effect of N, P and K on yield components and specific gravity, 399

Field testing for resistance to viruses, 151

Florida test for virus X, 137

French fry quality, 73 Fructose levels in tubers influenced by variety and harvest date, 379

Fungicide and nematicide tests, 220

Fusarial contamination on seed potatoes, elimination of, 211

Glucose levels in tubers influenced by variety and harvest date, 379

Glycoalkaloid in tubers, effect of systemic pesticides, on, 179 Harvest date influences sugar content of tubers and chip color, 379 Honorary life members- 1975, 373

Incidence of mop-top virus, 143

IPC newsletter, 133

Lysimeters used to measure effect of fertilizers, 399

Minutes of 1975 annual meeting of the PAA, 321 Minutes of PAA executive committee meeting, 317

Misses in the potato crop, 83

Netted Gem potatoes, effect of seedbed preparation and fertilizer, on. 263

New Brunswick, misses in the 1973 potato crop, 83

New journals, 101

New variety for Alaskan growers and processors, described, 47

New variety for maincrop use, 51

Nitrogen: high rate reduced average weight of tubers, 399

Nitrogen fertilization of Russet Burbank, 195

Noise levels in potato packing houses and dry grading plants, 249

Non-protein nitrogen in andigena potatoes, 341

Obituaries

William Black, 418

Alfred D. Edgar, 219 Erlon L. Newdick, 415 Jay P. Sleesman, 376

Officials and agencies in charge of potato seed certification 1974, 157

Optical density variations in aerial photographs of late blight infection, 233 Potato Association of America, The

Abstracts of papers presented at the 59th annual meeting, 239, 277

Announcement of formation of a section on Plant Pathology, 100

Call for nominations for honorary life membership, 102 Call for papers for 59th annual meeting, 22, 420

Minutes of annual meeting, 1975, 321

Minutes of executive committee meeting, 1975, 317

PAA honorary life members, 1975

James Monro, 373

Geddes W. Simpson, 374

PAA sections and committee assignments, 1975-76, 351

PAA treasurer's report for 1975, 330

Program of 59th annual meeting, 185 Periderm development in Norchief and Red Pontiac, 201

Petiole analysis, role in determining nitrogen needs of Russet Burbank, 195

Phosphorus: increased yield by increasing average tuber weight, 399 Phytophthora infestans, infection by, influenced by virus infections, 221

Pictorial key to genera of plant-parasitic nematodes, 136

Plant pathology section formed within PAA, 100

Polyacrylamide gel, used to detect the spindle tuber viroid, 57

Potassium: no effect on weight or number or tubers in a soil high in K, 399 Potato cultivars-

New: Snowchip, 47

Belleisle, 51, 151 Old: Abnaki, 179

Alaska 114, 47

Cariboo, 227

Cobbler, 179

Green Mountain, 47 Hunter, 151 and 227 Katahdin, 51, 137, 179, 221 Kennebec, 51, 147, 179, 379 Monona, 379

Menominee, 227

Norchief, 201 Norland, 179

Ona-2249, 227

Pungo, 211

Raritan, 227

Red Pontiac, 201, 379 Russet Burbank, 73, 117, 125, 195, 289, 387 as Netted Gem, 51, 263, 399

Sable, 151 Sebago, 51, 117

Shoshoni, 227

Superior, 103

Up to date, 227

USDA 41956, 107, 221 Various seedlings, 51, 107, 151, 179, 227 Potato diseases or causal organisms—

A. 314

Alternaria, 125 Black dot, 269

Colletotrichum atramentarium, 269

Corky ring spot, 1 Erwinia, 117

Fusarium roseum, 211 Fusarium solani, 211

Fusarium spp., 83 Late blight, 125, 221, 233

Leafroll, 151, 221, 314

M. 221

Mop-top, 143

Phytophthora infestans, 221, 233

Rhizoctonia, 83 S. 221 Spindle tuber, 57, 221 Spongospora subterranea, 143 Tobacco rattle virus, 1 Verticillium atro-album, 227 Verticillium dahliae, 227 Verticillium wilt, 227 X, 137, 221 Y, 107, 151, 221, 314

Potato harvesting, new concepts, 23

Potato insects

Aphids, 107, 313 Colorado potato beetle, 175 Potato leafhopper, 175

Potato packing houses, noise in, 249 Potato periderm, development of sporophores of Colletotrichum atramentarium on, 269

Potato mop-top virus in Peru, 143 Potato species-

chacoense, 107, 171, 175 commersonii, 171 curtilobium, 143 demissum, 107, 175 hougasii, 107

juzepczukii, 143 microdontum, 107 polyadenium, 175 stoloniferum, 107 subtilius, 175

tuberosum andigena, 107, 143, 175

Potato storages, economically important factors, 89 Potato tuber discs, used to produce potato shoots, 103 Pricing implications for selected potato products, 39

Pressure chamber measurements of water potential in leaves and tubers of Russet Burbank, 387

Procedures for detection of Erwinia spp. on potato tubers, 117 Production of certified seed potatoes by varieties, 1973-4, 159 Program for the 59th annual meeting of the PAA, 185

Protein content of andigena potatoes, 341

Radionuclides in the environment, 99 Resistance to aphids, 313

Resistance to leafroll. field testing, for, 151 Resistance to virus Y in andigena potatoes, 107 Resistance to virus Y, field testing, for, 151

Russet Burbank, dynamic mechanical properties of, 289

Scanning electron microscope used to observe development of sporophores of Colletotrichum atramentarium, 269

Seedbed preparation, effect on Netted Gem potatoes, 263 Seed testing in Florida, 137

Shoot formation in potato tuber discs in tissue culture, 103

Snowchip, described, 47

Solanum tuberosum subsp. andigena, resistance in, to: Colorado potato beetle, 175

Potato leafhopper, 175

Specific gravity and solids content in relation to French fry quality, 73 Spina bifida, relation to blighted potatoes, in laboratory animals, 125

Spindle tuber viroid, detection on polyacrylamide gel, 57 Stages of growth of potato plants, water usage at, 331

Suberization in Norchief and Red Pontiac, 201

Sucrose levels in tubers influenced by variety and harvest date, 379

Systemic pesticides, effect on glycoalkaloids, 179
Testing of blighted potatoes for ability to produce deformities in laboratory animals, 125

Tissue culture, use to produce potato shoots, 103 Tobacco rattle virus, weed hosts of, in Idaho, 1

Total nitrogen in andigena potatoes, 341

- Treasurer's report to PAA for 1975, 330
- Tuber sugars measured by gas-liquid chromatograph technique, 379
 Tuber water potential determined using graded osmotic measurements, 387
- 2N pollen, cytology of, 171 Variation in specific gravity and solids among strips within the same tuber, 73
- Variety trials of potatoes; Resistance to Verticillium wilt, 227
- Verticillium wilt, varietal resistance to, 227
 Von Humboldt award received by Dr. T. O. Diener and Dr. J. S. Semancik, 420
 Virus infections of potato, influence of, on late blight infections, 221
- Water deficits measured in Russet Burbank, 387
- Water potential in potato leaves, 387 Water potential in potato tubers, 387
- Water usage by potato plants, 331
- World meteorological organization (WMO) issues new catalog on publications, 377

